

REMARKS

The present invention relates to a vehicle framing system for a vehicle body having a plurality of separate body components. Each of the body components, furthermore, includes a reference surface.

The framing system includes an assembly station having spaced-apart frame members. The vehicle carrier supports the vehicle by components in a preassembled condition at the assembly station in preparation for securing the body components together.

At least two docking stations are secured to each frame member at predetermined positions along the frame member. A tool arm is associated with each docking station and a robot selectively moves the tool arm between an assembly position in which the tool arm abuts against its associated docking station, and a vehicle loading position in which the tool arm is disengaged from its associated docking station.

A tool arm clamp is mounted to each docking station and clamps the tool arm to its docking station when the tool arm is positioned at the assembly station. Furthermore, claim 1, the only independent claim, has been carefully amended to clarify that the tool arm clamp forms the sole means for removably securing the tool arm to its associated docking station.

At least one framing clamp having a reference block is attached to each tool arm and is moveable between a clamped and an unclamped position. In its clamped position, the reference block engages a reference surface on a body component to maintain the body components at a predetermined position relative to each other. The body components are then subsequently secured together, typically by welding.

The Patent Examiner has rejected claims 1-16 under 35 U.S.C. §112. Accordingly, the final paragraph of claim 1 has been extensively revised to overcome this basis for rejection.

The Patent Examiner, however, has further rejected claim 1, the only independent claim, as unpatentably obvious under 35 U.S.C. §103 over U.S. Patent No. 6,364,817 to McNamara et al., in view of U.S. Patent No. 4,679,297 to Hirano et al., and in further view of U.S. Patent No. 5,632,588 to Crorey et al. However, in view of Applicant's amendment to claim 1, Applicant respectfully submits that this basis for rejection can no longer stand.

More specifically, the McNamara et al. patent admittedly discloses an automotive framing system adding a pair of gate assemblies 20 on which a plurality of framing clamps are carried. As perhaps best shown in Fig. 2, the gate assemblies 20 are positioned on locating pins 46 along side of the vehicle being assembled.

Unlike the present invention, however, the gate assemblies 20 of McNamara et al. are not secured to their locating pins 46 by a tool arm clamp in the fashion now clearly defined in claim 1. Instead, a very complex structure, including the pivot arms 86, is positioned above the framing station to pivot the gate assemblies 20 between their inoperable position, illustrated in phantom lining in Fig. 2, and their operable position, illustrated in solid line in Fig. 2.

In sharp contrast to this, the present invention now clearly defines that the tool arm clamps secure the tool arms to the docking stations and form the sole means for doing so. As such, Applicant enjoys a much more compact construction for its framing system than shown by McNamara et al.

Furthermore, claim 1 clearly defines the robot for selectively moving the tool arms to and from the docking stations. Because of this, the robot may be utilized to move different tool arms to the same docking station to accommodate different vehicle styles. In sharp contrast to this, the McNamara et al. patent does not utilize a robot for moving the gate assemblies to and from their operable and inoperable positions. Rather, the gate assemblies 20 are fixedly secured to the pivot

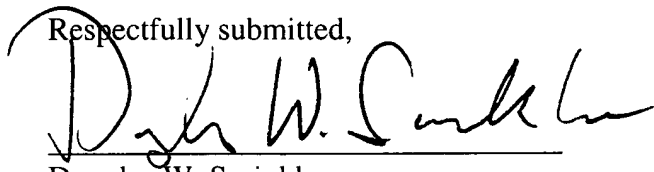
arms 86, such that the assembly station can accommodate only one type of automotive vehicle body. As such, Applicant's construction enjoys much greater flexibility than afforded by the McNamara et al. patent.

Neither the Hirano et al. nor the Crorey et al. patents cure this deficiency of the McNamara et al. patent. More specifically, neither Hirano et al. nor Crorey et al. disclose Applicant's use of a docking station and a robot for selectively positioning a tool arm on the docking station and the tool clamp which secures the tool arm to the docking station and forms the sole means for securing the tool arm to the docking station. Therefore, further discussion of these secondary references is unnecessary.

In view of the foregoing, Applicant respectfully submits that claim 1 patentably defines Applicant's invention over the prior art references of record and is, therefore, allowable. All remaining claims in this application depend from claim 1 and are, therefore, also allowable.

In view of the foregoing, Applicant respectfully submits that this case is now in condition for formal allowance and such action is respectfully solicited.

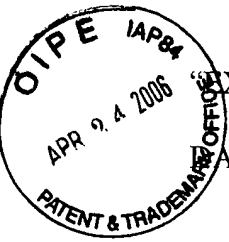
Respectfully submitted,

A handwritten signature in black ink, appearing to read "Douglas W. Sprinkle", is written over a horizontal line.

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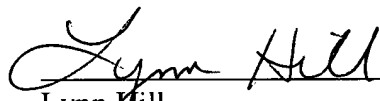
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